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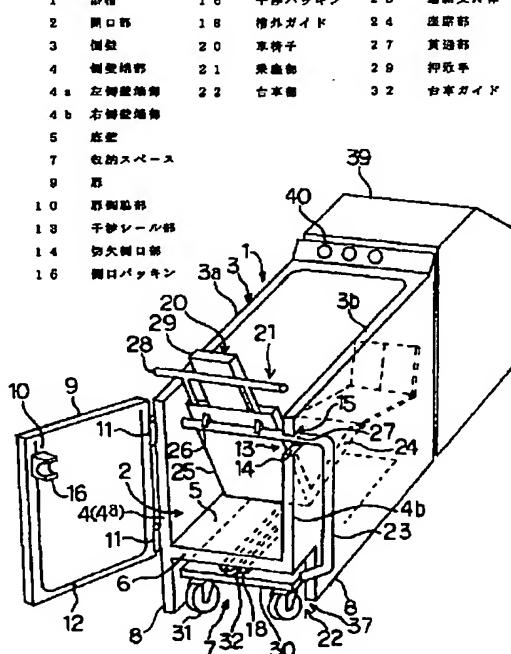
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(54)【発明の名称】干渉分離式車椅子入浴装置

(57)【要約】

【目的】車椅子の取扱いが容易で、座席部が浴槽内、台車部が浴槽外にセッティングする分離式入浴が、好適に行なえる干渉分離式車椅子入浴装置を提供することにある。

【構成】開口部(2)に扉(9)を設けた浴槽(1)と、乗座部(21)を台車部(22)に少なくとも一ヶ所の連結支持体(23)で連結支持してなる車椅子(20)とから構成され、浴槽(1)の側壁端部(4)及び／又は扉側脇部(10)との間の上方部分に切欠側口部(14)を設け、該部(14)に、車椅子(20)の連結支持体(23)を貫通させたうえ連結支持体(23)を密閉する干渉シール部(13)を形成し、前記連結支持体(23)の貫通部と切欠側口部(14)の隙間部分には簡易なパッキンシール構造を設けてなる干渉分離式車椅子入浴装置である。



## 【特許請求の範囲】

【請求項1】一側面に開口部(2)を設けた扉(9)付き浴槽(1)と、乗座部(21)と台車部(22)を上下に分割し連結支持体(23)で連結・支持してなる車椅子(20)とからなり、

前記開口部(2)の側壁端部(4)及び／又は扉側脇部(10)を連結支持体(23)が貫通する干渉シール部(13)に構成し、前記乗座部(21)は浴槽(1)内に収容し台車部(22)は浴槽(1)外に配備した事を特徴とする干渉分離式車椅子入浴装置。

【請求項2】開口部(2)の一方の側壁端部(4a)に横開式の扉(9)を設け、他方の側壁端部(4b)及び／又は扉側脇部(10)の上方部分に切欠側口部(14)を設け、

前記切欠側口部(14)と連結支持体(23)の貫通部(27)との隙間部分に、側口パッキン部材(15)及び干渉パッキン部材(16)を充填しシールすることを特徴とする請求項1記載の干渉分離式車椅子入浴装置。

【請求項3】浴槽(1)の開口側の底壁(5)の下方に台車収納スペース(7)を設け、且つ、浴槽(1)の一部に車椅子導入用の槽外ガイド(18)を設け、更に、該ガイド(18)に相対して車椅子(20)の台車部に台車ガイド(32)を設け、

座席部(24)後方に押取手(29)を配した車椅子(20)に入浴者を乗せ、浴槽(1)の開口部(2)に足先より前向き前進で挿入し、扉(9)を閉鎖して干渉シール部(13)を形成した後、給湯・入浴可能な構造としたことを特徴とする請求項1記載の干渉分離式車椅子入浴装置。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明は、身体障害者や養護老人等(以下入浴者という)が車椅子入浴するための干渉分離式車椅子入浴装置に関する。

## 【0002】

【従来の技術】従来の技術として特開平9-94279号公報に、据置型車椅子入浴装置と、扉開閉式浴槽(=浴槽本体)と、浴槽本体の後半部側だけの据置き構造と、浴槽本体の底面の前半部を床面から浮上させる構造と、扉と、チェアトロリーと、キャスターと、移動台車と、逆U字状垂直設置の吊りフレームと、チェア本体等の部材でなる据置型車椅子入浴装置のチェアトロリー装置が開示されている。

## 【0003】

【発明が解決しようとする課題】前記した従来装置は、移動台車とチェア本体を逆Uの字状吊りフレームで連結・支持し、チェア本体を浴槽本体の側壁に干渉することなく側壁の上方を跨いで浴槽本体内に挿入し、前扉を閉鎖し入浴可能とするものであり、チェアトロリーと浴槽本体の側壁の干渉部分の無い防水シール機構を不要とす

る事を目的とするものである。

【0004】この従来装置では、浴槽本体の側壁を跨ぐ吊りフレームは大きなものとなり、又、搬送用の押手用ハンドルも大きなものとなり、更に、コンパクトな入浴装置で用いる場合不恰好なものとなり、更に又、座席部使用の入浴者の邪魔になるばかりでなく、外形的にも大きなものとなるので、搬送性など非常に操作性も悪いものである。

【0005】本発明の目的は、上記欠点を解決したものであり、コンパクトで扱いが容易で湯水のシールも簡易に行なえる省スペース型の干渉分離式車椅子入浴装置を提供することにある。

## 【課題を解決するための手段】

【0006】一側面に開口部(2)を設けた扉(9)付き浴槽(1)と、乗座部(21)と台車部(22)を上下に分割し連結支持体(23)で連結・支持してなる車椅子(20)とからなり、前記開口部(2)の側壁端部(4)及び／又は扉側脇部(10)を連結支持体(23)が貫通する干渉シール部(13)に構成し、前記乗

座部(21)は浴槽(1)内に収容し台車部(22)は浴槽(1)外に配備した事を特徴とする干渉分離式車椅子入浴装置である。又、開口部(2)の一方の側壁端部(4a)に横開式の扉(9)を設け、他方の側壁端部(4b)及び／又は扉側脇部(10)の上方部分に切欠

側口部(14)を設け、前記切欠側口部(14)と連結

支持体(23)の貫通部(27)との隙間部分に、側口パッキン部材(15)及び干渉パッキン部材(16)を充填しシールする。更に、浴槽(1)の開口側の底壁(5)の下方に台車収納スペース(7)を設け、且つ、

浴槽(1)の一部に車椅子導入用の槽外ガイド(18)を設け、更に、該ガイド(18)に相対して車椅子(20)の台車部に台車ガイド(32)を設け、座席部(24)後方に押取手(29)を配した車椅子(20)に入浴者を乗せ、浴槽(1)開口部(2)に足先より前向き前進で挿入し、扉(9)を閉鎖して干渉シール部(13)を形成した後、給湯・入浴可能な構造としている。

## 【0007】

【作用】浴槽(1)の一側面の開口部(2)に設けられた扉(9)は、開閉する。車椅子(20)の乗座部(21)と台車部(22)は上下に分割され、乗座部(21)と台車部(22)を連結支持体(23)で連結・支持する。浴槽(1)開口部(2)の側壁端部(4)又は／及び扉側脇部(10)に、連結支持体(23)が貫通する。乗座部(21)は浴槽内に収容し台車部(22)は浴槽外に配備する。

【0008】浴槽開口(2)の一方の側壁(3)端部(4a)に設けられる扉(9)は、横方向(=水平方向)に回動し開く。他方の側壁(3)端部(4b)及び／又は扉側脇部(10)の上方部分に設けられる切欠側口部(14)は、連結支持体(23)の貫通部(27)

を貫通状に収容する。更に、該切欠側口部（14）と貫通部（27）の隙間部分に、側口パッキン部材（15）及び干渉パッキン部材（16）を充填し切欠側口部（14）をシールする。

【0009】浴槽（1）開口側底壁（5）の下方に設けられた台車収納スペース（7）は、台車部（22）を収納する。浴槽（1）の一部に設け槽外ガイド（18）は車椅子を導入する。該ガイドに相対して車椅子（20）の台車部に設けられる台車ガイド（32）は、槽外ガイド（18）に接触転動しながら車椅子（20）を、台車収納スペース（7）の内部へ導入する。

【0010】座席部（24）の後方に押取手（29）を配した車椅子（20）に、入浴者を乗せる。浴槽（1）開口部（2）に足先より前向き前進で挿入し、扉（9）を閉鎖する。扉（9）を閉鎖すると干渉シール部（13）がシールを形成し、給湯すれば入浴が可能である。

【0011】

【実施例】図1、2に本発明の第1実施例示す。本装置は、槽脚8により浴室床に設置される浴槽1と、主に浴室での移動・入浴用に用いる車椅子20とからなる。

【0012】浴槽1には、正面に側壁3と底壁5により構成される開口部2と扉9が設けられ、浴槽1正面側の底壁5の下方には車椅子20の台車部22を収納する空間、すなわち、台車収納スペース7が構成されている。

【0013】前記側壁3の右側壁端部4bの上方には側壁3の端部を切り欠いた切欠側口部14を開設しており、図2に構造を示す側口パッキン15が止着されている。この切欠側口部14は車椅子20の連結支持体23

（=貫通部27）を貫通・収容し、更に扉9の閉止によって切欠側口部14の隙間を閉鎖し、湯水のシールが可能となり浴槽1と分離式の車椅子20の連結支持体23が干渉する干渉シール部13を形成するものである。

【0014】奥側に側口パッキン15を設けた切欠側口部14は、車椅子20の浴槽1内装着により連結支持体23を収容し、更に、扉9が閉止されて、当該扉9に設けられた干渉パッキン16の装着によって切欠側口部14は連結支持体23の貫通部27を包囲収容して側壁3と一体的に密閉封鎖した構造すなわち干渉シール部13が形成され湯水のシールが可能となる。

【0015】扉9は、浴槽1開口部2の切欠側口部14のない左側壁端部4aに回動自在のヒンジ11を介して開閉可能に取りつけられている。又、扉9周囲の扉側脇部10には開口部2に合わせ扉パッキン12が設けられており扉9と側壁3及び底壁5との間を圧接し開口部2の湯水をシールする構造をなしている。扉9には開閉用の押取手28と閉鎖ロック機構を設ける（図示省略）。

【0016】扉9の閉鎖状態で切欠側口部14に相対する扉側脇部10上方の部位には、該連結支持体23貫通での発生隙間を閉止する干渉パッキン16が突き出して止着され、扉9の閉止によって切欠側口部14の手前に

挿入され干渉シール部13が構成され湯水のシールが可能となる。

【0017】台車収納スペース7に収納される車椅子20は分割構成の乗座部21と台車部22を連結支持体2053で連結・支持し一体的に構成されている。入浴用の車椅子20は上方の乗座部21と下方の台車部22とその上下を連結する連結支持体23から構成され、連結支持体23上方の横に伸びた上端は座席止着部26で座席台25の上方を支えている。

【0018】乗座部21を支持した連結支持体23は貫通部27で浴槽1の側壁3と干渉して切欠側口部14を貫通し、浴槽1外で下方に伸び、下方の台車部22の台車フレーム30後方横部に止着される。

【0019】台車部22は浴槽1開口部2側の底壁5の15下に設けられた台車収納スペース7に開口部2方向より前向きに挿入装着されるが、台車部22の後部に連結支持体23が設けられている為、車椅子20の進退は、該浴槽1の槽脚8の開口側端部をわずか切欠くか開口部2より後方の槽脚8の無い部分に連結支持体23の付根部を20配備しても良く、少なくとも槽脚8の端部のみに床面とスペースを設ければ良く浴槽1全体の据置きはきわめて安定である。

【0020】車椅子20の台車部22にはキャスター31が取着され、台車部22の一部には車椅子20を浴槽251に進入・挿入させる際の台車ガイド32が設けられており、底壁5下の浴槽1側に設けられた槽外ガイド18に対応して台車部22を導入し入浴位置にセットされる。

【0021】図2に右側壁3bの上方部に設けられる切30欠側口部14のパッキンの具体例を示すが、切欠側口部14の奥側には側口パッキン15が取着され、これに対応して扉9の扉側脇部10の上部には干渉パッキン16が取着されており、車椅子20の浴槽1内装着により連結支持体23が側口パッキン15と干渉パッキン16の間に包囲形成されるように干渉スペース17に装填され、扉9のロックとし、側口パッキン15の加圧具44により連結支持体23の貫通部27に密着させ密閉的構造の干渉シール部13を形成する。

【0022】台車部22より浴槽1外の上方に伸びた連結支持体23は側壁3の上方に、且つ車椅子20のヘッドレスト29より下方の部分に、好ましくは座席部24の肩部近辺で内側に曲折し貫通部27を形成し、該部27に相対して設けられている側壁3の切欠側口部14を貫通して浴槽1内に至り座席台25の上部で乗座部21を支持する。

【0023】貫通部27が貫通する切欠側口部14の奥側には側口パッキン15が配され、それに相対して設けられている扉側脇部10の干渉パッキン16が扉9の閉止とともに切欠側口部14を封鎖し湯水がシール可能となり干渉シール部13が構成される。

【0024】車椅子20の乗座部21は座席部24の背後に座席台25、上部にヘッドレスト29、背後に押取手28などが設けられている。浴槽1への給湯、湯温制御、気泡機能、循環、排水などの操作は操作部40によって行われ、湯の給・排のため給湯・貯湯装置39に連結されている。尚図2中、15aはチューブパッキン、15bは取り付け座、16aはクッション体、16bは被着面である。

【0025】実施例1を使用するに際し、入浴を始める時は、介助者は扉9を開け、車椅子20の乗座部21に患者を載せたまま車椅子20背後よりの座席台25上部に設けられた押取手28を押し足先より前向き・前進して浴槽1開口部2より槽ガイド18・台車ガイド32にならって浴槽1内に進入・挿入する。

【0026】乗座部21を底壁5の上に入れ、台車部22を底壁5の下の台車収納スペース7に差し込み、連結支持体23は浴槽1の開口部2下方の槽脚8の切込み部37にセッティングする。車椅子20のセッティング固定は、台車部4の先端を台車係止部19に係止して行なう。

【0027】車椅子20をセッティング後、扉9を閉めロックする。扉9を閉めると貫通部27が切欠側口部14に収容され、該部14に設けられた側口パッキン15と扉側脇部10の干渉パッキン16により湯水をシールする干渉シール部13が形成される。

【0028】扉9の扉側脇部10に取着の扉パッキン12は、浴槽1の開口部2の左・右側壁3a・3bの各正面端と、底壁5の正面端に当接する。次に、浴槽1に設けられる掛止ハンドル（図示省略）を操作し、扉9を浴槽1方向に引き締め、浴槽1と扉9間の開口部2をシールを可能にする。

【0029】前記扉パッキン12は、押圧されて扉9と浴槽1の水密を図る。即ち、扉9が浴槽1の左・右側壁3a・3bの各正面端に押圧され両者の水密を図り、更に、扉9の下端部が底壁5の前端に押圧され両者の水密を図る。

【0030】次に、干渉シール部13を構成する側口パッキン15の圧力操作具（図示省略）を操作し適当な圧力を加え膨張させ、貫通部27と切欠側口部14のスキマを封鎖し側壁部分の水密を図る。浴槽1上部で水圧が低いため底壁端部6でのシールに比べより、より簡易良好にシールされる。次に、給湯・貯湯装置39の湯を操作部40を操作して浴槽1へ移動させ、入浴を行なう。

【0031】脱浴しようとする時には、先ず、浴槽1の湯を前記給湯・貯湯装置39へ移動又は排出させ、湯を抜いて空にした後、シール状態の圧力操作具など解除した後、ドアロックの掛止ハンドル（図示省略）などを操作し、浴槽1と扉9との掛止を外し、扉9を開け、車椅子20と共に入浴者を浴槽1から引き出し、入浴を終わる。

【0032】図3に示す第2実施例は、車椅子20のリクライニング構造例を示す。連結支持体23に支持される座席台25は上部には座席部24の背部を上下にスライド可能に係支する座席止着部26、下方には座席部24を載せて前後にスライド可能な座席台レール25bと座席部24下部の座席スライダー25cとスライド調節具25dが構成され乗座部先端はフットレスト41である。

【0033】スライド調節具25dで、座席部24の角度が自在に調節され適宜なリクライニングが形成される。図示を省くが他公知のリクライニングも同様に適用される。尚、図3中、25aは座席台ステー、42はアームレストである。

【0034】図4に側面視の断面の説明を示す第3実施例は、浴槽1の側壁端部4と扉側脇部10の間に設けられる干渉シール部13を構成する切欠側口部14を、側壁3と扉9の両側に分けて設けたものであり、詳細は省くが扉9の閉止力のみによって密閉可能としたものである。

【0035】又、座席台25の先端部には連結支持体23に掛かる座席荷重を補助し座席の搖れなど防止し連結支持体23をスリム化するため、座席ロック33と座席ロール34が設けられており、座席ロック33は車椅子20が浴槽1外にある場合台車部22に旋回可能に設けられ座席ロック33のロックレバー33aが座席台25の先端部をロックしたうえ係止しており、浴槽1に挿入する際座席ロール34が底壁5に乗り上げロックレバー33aがバネ力によって旋回し底壁5の下方に潜り込み収納される。

【0036】座席ロール34は座席荷重を補助しながら浴槽1内底壁5上をすべり浴槽1に装着される。又、浴槽1の台車収納スペース7の突当たり部には台車係止部19が設けられ台車部22の前端部が係止される。尚、図4中、14aは浴槽切欠側口部、14は扉切欠側口部、33bは支点、33cはコマ、33dはピンである。

【0037】図5は側壁3上端部に干渉シール部13を設けた第4実施例を示す側面視の部分説明図である。側壁3上部の側壁端部4を矩形状コーナーカットした切欠側口部14を設け該部14に上下はさみ状に旋回する上シール蓋35aと下シール蓋35bで構成するシール蓋35を配置し、その上下の中間部に連結支持体23の貫通部25が干渉・貫通する干渉スペース17を構成している。

【0038】上下シール蓋35a・35bが開放された浴槽1に車椅子20が挿入されて後上下のシール蓋35が閉じられ干渉シール部13を形成する構造である。同時に扉9も閉止され湯水の給水が可能となる。上下シール蓋35a・35bの旋回機構はギア36における上下ギア36a・36bのかみ合いセットにより作動可能な

もので、図示を省略するが、扉9の閉止作動に連動して作動する構造となっている。

【0039】又、干渉シール部13の下方には少量漏水の排水を可能にする漏水受け皿43と排水チューブ38が付帯されており若干の漏水が生じた場合でも容易に排水できる。

【0040】

【発明の効果】本発明は、浴槽1の扉9を開けておいて、開口部2より車椅子20の連結支持体23を側壁端部4上方部で干渉・貫通させつつ車椅子20を差し込み乗座部21と台車部22を浴槽1の内外に分離収納させておいて、扉9を閉め、側壁端部4及び／又は扉側脇部10に開設された切欠側口部14に連結支持体23を貫通させ、該部を干渉パッキン16でシールするものである。

【0041】この構成によれば、連結支持体23が浴槽1の側壁3を超えないで大きくならず、車椅子20の肩部以下の高さに収まるため外観も含めコンパクトであり、入浴者や介助者の邪魔にならず、外観見栄えも良く、操作性・取扱性のよいものである。

【0042】本発明は、干渉シール部13が底壁5や浴槽1下方に無いためシール構造部に掛かる水圧は底壁5に設けた場合の半分以下、好ましくは20%以下のため、スポンジパッキンなど簡単なシール構造でも良く、若干の漏水があっても少量排水機構(=洩水受皿)によって簡単に処理でき、大掛かりなシール機構も不要であり浴槽1構造も簡易であり、好都合である。

【0043】又、乗座部21と台車部22を連結する連結支持体23が側壁3と扉9の境界近傍に位置しているため槽脚8をほとんど切欠く必要も無いため据置き設置の安定性にもまったく問題無いものであり浴槽1構造も簡易であり、好都合である。

【0044】更に、床勾配などに起因して連結支持体23が若干が傾いても水圧が殆ど無いためシール作用にも大きな支障が及ばないため、床勾配の制約も受けず、経年変化などによって干渉シール部13の貫通部27の状態が変わってもシール作用に支障が及ばず、好都合である。

【0045】本発明は、車椅子20の押取手28が乗座部21・座席部23の背後にあり、且つ前向きでの前進搬送、前進挿入が可能であるため、入浴者の着用感も良く、介護者の介護性能にも優れており、好都合である。

05 【図面の簡単な説明】

【図1】本発明の第1実施例の斜視図である。

【図2】本発明の第1実施例における干渉シール部の斜視図である。

【図3】本発明の第2実施例における車椅子の斜視図である。

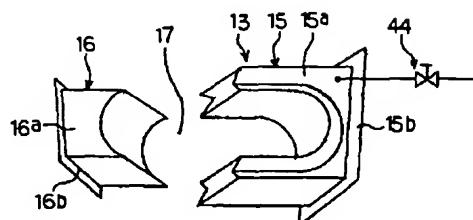
【図4】本発明の第3実施例の側面図である。

【図5】本発明の第4実施例における干渉シール部の平面図である。

【符号の説明】

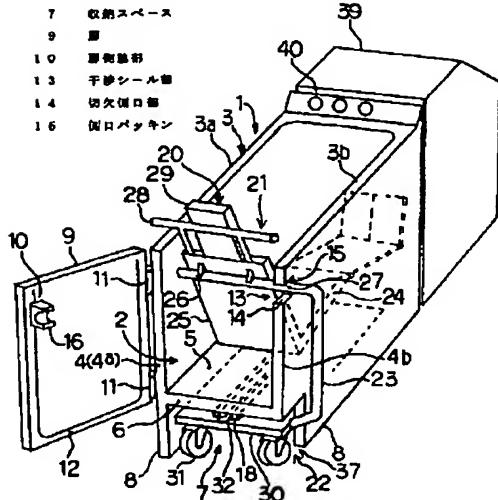
15	1	浴槽
2	2	開口部
3	3	側壁
4	4	側壁端部
4 a	4 a	左側壁端部
20	4 b	右側壁端部
5	5	底壁
7	7	収納スペース
9	9	扉
10	10	扉側脇部
25	13	干渉シール部
14	14	切欠側口部
15	15	側口パッキン
16	16	干渉パッキン
18	18	槽外ガイド
30	20	車椅子
21	21	乗座部
22	22	台車部
23	23	連結支持体
24	24	座席部
35	27	貫通部
29	29	押取手
32	32	台車ガイド

【図2】

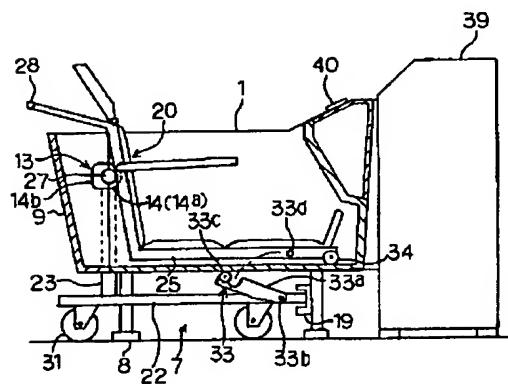


【图 1】

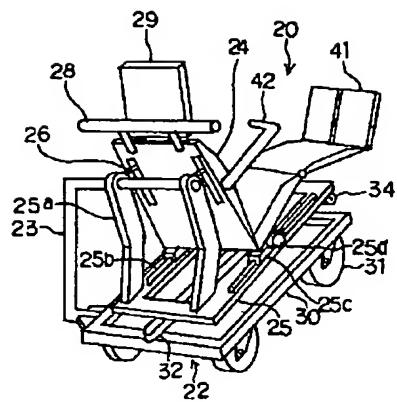
1	接管	1.6	干涉パッキン	2.2	遮断支持体
2	開口部	1.8	導管ガイド	2.4	遮断部
3	隔壁	2.0	本拘子	2.7	貫通部
4	隔壁端部	2.1	突白部	2.9	押収手
4.5	左側隔壁部	2.2	台車部	3.2	支承ガイド
4.6	右側隔壁部				
5	底盤				
7	収納スペース				
9	扉				
10	取扱基形				
13	干涉シール面				
14	首次開口部				
15	側面ノブ				



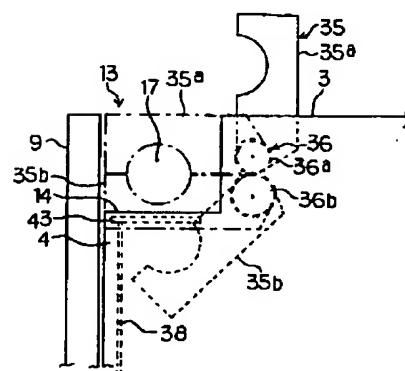
(图 4)



[図 3]



【図5】



## PATENT ABSTRACTS OF JAPAN

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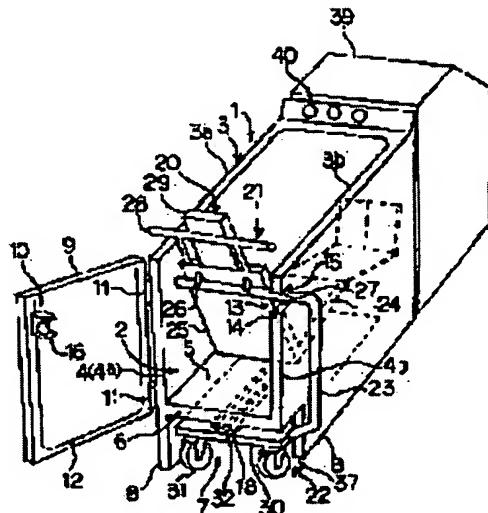
(72)Inventor : ANZAI SHIGEO  
TSUJI KAZUMORI

## (54) WHEELCHAIR BATHING DEVICE OF INTERFERENCE SEPARATING TYPE

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a wheelchair bathing device of an interference separating type capable of appropriately executing separating-type bathing where a wheelchair is easily handled, a seat part is set inside of the bathtub and a carriage part is set to the outside of the bathtub.

**SOLUTION:** This wheelchair bathing device of the interference separating type is formed of the bathtub 1 providing a door 9 at an opening part 2 and the wheelchair 20 obtained by connect-supporting a riding seat part 21 to the carriage part 22 by connecting supporters 23 at not less than one place. A mouth part on a notch side 14 is provided at the side wall end part 4 of the bathtub 1 and/or an upper part between with a side part on a door side 10. An interference sealing part 13 tightly closing the supporters 23 after putting through the supporters 23 of the wheelchair 1 is formed at the part 14. Then, a simple packing seal structure is provided at the put-through parts of the supporters 23 and the gap part of the part 14.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] It is interference separation formula wheelchair bathing equipment which is equipped with the following, constitutes the side-attachment-wall edge (4) and/or \*\*\*\*\* (10) of the aforementioned opening (2) in the interference seal section (13) which a connection base material (23) penetrates, holds the aforementioned \*\*\*\*\* (21) in a bathtub (1), and is characterized by arranging a truck (22) out of a bathtub (1). The bathtub with door (9) which prepared opening (2) in the unilateral side (1) The wheelchair which divides \*\*\*\*\* (21) and a truck (22) up and down, and comes to carry out connection and support by the connection base material (23) (20)

[Claim 2] The door (9) of horizontal starting a ceremony is prepared in one side-attachment-wall edge (4a) of opening (2). The notch side-vent section (14) is prepared in the side-attachment-wall edge (4b) of another side, and/or the upper part portion of \*\*\*\*\* (10). Interference separation formula wheelchair bathing equipment according to claim 1 characterized by filling up with and carrying out the seal of a side-vent packing member (15) and the interference packing member (16) to the crevice portion of the aforementioned notch side-vent section (14) and the penetration section (27) of a connection base material (23).

[Claim 3] Truck storage space (7) is prepared under the bottom wall (5) by the side of opening of a bathtub (1). And the guide for wheelchair introduction tub outside (18) is prepared in some bathtubs (1). Furthermore, face this guide (18) and a truck guide (32) is prepared in the truck of a wheelchair (20). A bathing person is put on the wheelchair (20) which allotted \*\*\*\*\* (29) to seat section (24) back.

Interference separation formula wheelchair bathing equipment according to claim 1 characterized by considering as the structure in which hot-water supply and bathing are possible after having inserted in opening (2) of a bathtub (1) by positive advance from the tip of a foot, closing the door (9) and forming the interference seal section (13).

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[Translation done.]

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the interference separation formula wheelchair bathing equipment for a physically handicapped person, a protective care old man, etc. doing wheelchair bathing (henceforth a bathing person).

[0002]

[Description of the Prior Art] the chair trolley-equipment which is deferred type wheelchair bathing equipment which inverted-L-shaped perpendicular installation hangs to JP,9-94279,A with deferred type wheelchair bathing equipment, a door opening-and-closing formula bathtub (main part of = bathtub), the deferment structure only by the side of the second-half section of the main part of a bathtub, the structure surface the first portion of the base of the main part of a bathtub from a floor line, a door, a chair trolley, an axle-pin rake, and a movable cart, and becomes it by the frame and members, such as a main part of a chair

[0003]

[Problem(s) to be Solved by the Invention] Ranging over the upper part of a side attachment wall, it inserts into the main part of a bathtub, without equipment's connecting and supporting a movable cart and the main part of a chair with the character-like \*\*\*\* frame of Reverse U conventionally [ said ], and interfering in the main part of a chair at the side attachment wall of the main part of a bathtub, a front door is closed, bathing is made possible, and it aims at making unnecessary a waterproofing seal mechanism without the interference portion of the side attachment wall of a chair trolley and the main part of a bathtub.

[0004] Since it hangs and a frame will become big, and it will become ill-shaped and it not only becomes an obstacle of the bathing person of seat section use, but will become big also in appearance conventionally [ this ] further again when [ for which the side attachment wall of the main part of a bathtub is straddled with equipment ] the handle for demand pushers for conveyance will also become big and it uses it with still compacter bathing equipment, conveyance nature etc. is what also has very bad operability.

[0005] The above-mentioned fault is solved, the purpose of this invention is compact, it is easy to treat and it is to offer the \*\* space type interference separation formula wheelchair bathing equipment which can also perform the seal of hot and cold water simply.

[Means for Solving the Problem]

[0006] Divide \*\*\*\*\* (21) and a truck (22) up and down, and it becomes the bathtub with door (9) (1) which prepared opening (2) in the unilateral side from the wheelchair (20) which comes to carry out connection and support by the connection base material (23). The side-attachment-wall edge (4) and/or \*\*\*\*\* (10) of the aforementioned opening (2) are constituted in the interference seal section (13) which a connection base material (23) penetrates. The aforementioned \*\*\*\*\* (21) is interference separation formula wheelchair bathing equipment characterized by having held in the bathtub (1) and arranging a truck (22) out of a bathtub (1). Moreover, the door (9) of horizontal starting a ceremony is

prepared in one side-attachment-wall edge (4a) of opening (2). The notch side-vent section (14) is prepared in the side-attachment-wall edge (4b) of another side, and/or the upper part portion of \*\*\*\*\* (10), and the seal of a side-vent packing member (15) and the interference packing member (16) is filled up with and carried out to the crevice portion of the aforementioned notch side-vent section (14) and the penetration section (27) of a connection base material (23). Furthermore, truck storage space (7) is prepared under the bottom wall (5) by the side of opening of a bathtub (1). And the guide for wheelchair introduction tub outside (18) is prepared in some bathtubs (1). Furthermore, face this guide (18) and a truck guide (32) is prepared in the truck of a wheelchair (20). A bathing person is put on the wheelchair (20) which allotted \*\*\*\*\* (29) to seat section (24) back, and it inserts in bathtub (1) opening (2) by positive advance from a tip of a foot, and after closing a door (9) and forming the interference seal section (13), it is considering as the structure in which hot-water supply and bathing are possible.

[0007]

[Function] The door (9) prepared in opening (2) of the unilateral side of a bathtub (1) is opened and closed. \*\*\*\*\* (21) and the truck (22) of a wheelchair (20) are divided up and down, and connect and support \*\*\*\*\* (21) and a truck (22) by the connection base material (23). A connection base material (23) penetrates to the side-attachment-wall edge (4) of bathtub (1) opening (2) or/, and \*\*\*\*\* (10). \*\*\*\*\* (21) is held in a bathtub and arranges a truck (22) out of a bathtub.

[0008] The door (9) prepared in one side-attachment-wall (3) edge (4a) of bathtub opening (2) is rotated and opened to a longitudinal direction (= horizontal direction). The notch side-vent section (14) prepared in the side-attachment-wall (3) edge (4b) of another side and/or the upper part portion of \*\*\*\*\* (10) holds the penetration section (27) of a connection base material (23) in the shape of penetration. Furthermore, the crevice portions of this notch side-vent section (14) and the penetration section (27) are filled up with a side-vent packing member (15) and an interference packing member (16), and the seal of the notch side-vent section (14) is carried out to them.

[0009] The truck storage space (7) prepared under the bathtub (1) opening side bottom wall (5) contains a truck (22). It prepares in some bathtubs (1) and a guide (18) tub outside introduces a wheelchair. The truck guide (32) which faces this guide and is prepared in the truck of a wheelchair (20) introduces a wheelchair (20) into a guide (18) tub outside inside truck storage space (7), carrying out contact rolling.

[0010] A bathing person is put on the wheelchair (20) which allotted \*\*\*\*\* (29) behind the seat section (24). It inserts in bathtub (1) opening (2) by positive advance from a tip of a foot, and a door (9) is closed. A bath can be taken, if a door (9) is closed and the interference seal section (13) will form and carry out hot-water supply of the seal.

[0011]

[Example] It is the 1st operation \*\*\*\*\* of this invention to drawing 1 and 2. This equipment consists of a bathtub 1 installed in a bathroom floor by \*\*\*\* 8, and a wheelchair 20 mainly used for movement / bathing in a bathroom.

[0012] Opening 2 and the door 9 which are constituted by a side attachment wall 3 and the bottom wall 5 are prepared in a transverse plane, and the space 7 which contains the truck 22 of a wheelchair 20 under the bottom wall 5 by the side of bathtub 1 transverse plane, i.e., truck storage space, is constituted by the bathtub 1.

[0013] Above right-hand side wall edge 4b of the aforementioned side attachment wall 3, the notch side-vent section 14 which cut and lacked the edge of a side attachment wall 3 is established, and the side-vent packing 15 which shows structure to drawing 2 is attached firmly. This notch side-vent section 14 penetrates and holds the connection base material 23 (= penetration section 27) of a wheelchair 20, and forms the interference seal section 13 in which the crevice between the notch side-vent sections 14 is closed, the seal of hot and cold water becomes possible, and the connection base material 23 of a bathtub 1 and the wheelchair 20 of a separation formula interferes by stoppage of a door 9 further.

[0014] The notch side-vent section 14 which formed the side-vent packing 15 in the back side Hold the connection base material 23 by the bathtub 1 interior arrival of a wheelchair 20, and a door 9 is stopped further. It is formed of wearing of the interference packing 16 prepared in the door 9 concerned, the

structure 13, i.e., the interference seal section, which carried out envelopment hold of the penetration section 27 of the connection base material 23, and carried out the sealing blockade in one with the side attachment wall 3, and the seal of hot and cold water of the notch side-vent section 14 becomes possible by it.

[0015] It is attached possible [ opening and closing ] through the hinge 11 which can be freely rotated to left-hand side wall edge 4a without the door 9 of the 14 notch side-vent section of bathtub 1 opening 2. Moreover, the structure which it doubles with \*\*\*\*\* 10 of the door 9 circumference at opening 2, and the door packing 12 is formed, carries out the pressure welding of between a door 9, a side attachment wall 3, and bottom walls 5, and carries out the seal of the hot and cold water of opening 2 is made. \*\*\*\*\* 28 and the synizesis lock mechanism for opening and closing are prepared in a door 9 (illustration ellipsis).

[0016] The interference packing 16 which stops the generating crevice between these connection base material 23 penetration is projected and attached firmly to the part of the \*\*\*\*\* 10 upper part which faces the notch side-vent section 14 in the state of synizesis of a door 9, it is inserted by stoppage of a door 9 before the notch side-vent section 14, the interference seal section 13 is constituted, and the seal of hot and cold water becomes possible by it.

[0017] The wheelchair 20 contained by the truck storage space 7 connects and supports \*\*\*\*\* 21 and the truck 22 of division composition by the connection base material 23, and is constituted in one. The wheelchair 20 for bathing consists of connection base materials 23 which connect the upper and lower sides with upper \*\*\*\*\* 21 and the downward truck 22, and the upper limit extended beside the connection base material 23 upper part supports the upper part of the seat base 25 in the seat firm attachment section 26.

[0018] The connection base material 23 which supported \*\*\*\*\* 21 interferes with the side attachment wall 3 of a bathtub 1 in the penetration section 27, penetrates the notch side-vent section 14, is caudad extended out of a bathtub 1, and is attached firmly to the truck frame 30 back transverse part of the downward truck 22.

[0019] Although insertion wearing of the truck 22 is carried out at the truck storage space 7 prepared in the bottom of the bottom wall 5 by the side of bathtub 1 opening 2 more positively than an opening 2-way Since the connection base material 23 is formed in the posterior part of a truck 22, the attitude of a wheelchair 20 Deferment of the bathtub 1 whole is [ that what is necessary is to arrange the root section of the connection base material 23 into the portion which does not have back \*\*\*\* 8 from \*\*\*\*\* or opening 2 only in the opening side edge section of \*\*\* 8 of this bathtub 1, and to provide a space only for the edge of \*\*\*\* 8 at least at a floor line ] very stable.

[0020] A truck 22 is introduced corresponding to the guide 18 tub outside which an axle-pin rake 31 is attached in the truck 22 of a wheelchair 20, and the truck guide 32 at the time of making a part of truck 22 advance and insert a wheelchair 20 at a bathtub 1 is formed in it, and was prepared in the bathtub 1 side under a bottom wall 5, and it is set to a bathing position.

[0021] Although the example of packing of the notch side-vent section 14 prepared in drawing 2 at the upper part section of right-hand side wall 3b is shown The side-vent packing 15 is attached in the back side of the notch side-vent section 14, and the interference packing 16 is attached in the upper part of \*\*\*\*\* 10 of a door 9 corresponding to this. The interference space 17 is loaded so that envelopment formation of the connection base material 23 may be carried out by the bathtub 1 interior arrival of a wheelchair 20 between the side-vent packing 15 and the interference packing 16. Consider as the lock of a door 9, it is made to stick to the penetration section 27 of the connection base material 23 with the pressurization implement 44 of the side-vent packing 15, and the interference seal section 13 of sealing-structure is formed.

[0022] the connection base material 23 extended above [ truck / 22 / besides a bathtub 1 ] -- the upper part of a side attachment wall 3 -- and from the headrest 29 of a wheelchair 20, it bends inside preferably into a downward portion in the shoulder neighborhood of the seat section 24, and the penetration section 27 is formed, the notch side-vent section 14 of the side attachment wall 3 which faces this section 27 and is prepared is penetrated, it results in a bathtub 1, and \*\*\*\*\* 21 is supported in the upper part of

the seat base

[0023] The side-vent packing 15 is arranged on the back side of the notch side-vent section 14 which the penetration section 27 penetrates, the interference packing 16 of \*\*\*\*\* \* 10 faced and prepared in it blocks the notch side-vent section 14 with stoppage of a door 9, the seal of hot and cold water becomes possible, and the interference seal section 13 is constituted.

[0024] A headrest 29 is formed in the seat base 25 and the upper part, and, as for \*\*\*\*\* 21 of a wheelchair 20, \*\*\*\*\* 28 etc. is back formed behind the seat section 24. Operation of the hot-water supply to a bathtub 1, water temperature control, a cellular function, circulation, drainage, etc. is performed by the control unit 40, and it connects with hot-water supply and hot-water-storing equipment 39 for the feeding and discarding of hot water. In addition, for 15a, tube packing and 15b are [ a cushion object and 16b of a mounting eye and 16a ] covering sides among drawing 2.

[0025] When facing using an example 1 and beginning bathing, from a tip of a foot, \*\*\*\*\* 28 prepared above [ of the wheelchair 20 back ] seat base 25, putting a patient on \*\*\*\*\* 21 of a wheelchair 20 is pushed, a care worker does positive and advance of, and a door 9 is opened, and he advances and inserts [ he learns from tub guide 18 and the truck guide 32 from bathtub 1 opening 2, and ] into a bathtub 1.

[0026] SETTENGU [ \*\*\*\*\* 21 is put in on a bottom wall 5, and a truck 22 is inserted in the truck storage space 7 under a bottom wall 5, and / the connection base material 23 / the infeed section 37 of \*\*\*\* 8 of opening 2 lower part of a bathtub 1 ]. Setting fixation of a wheelchair 20 stops the nose of cam of a truck 4 in the truck stop section 19, and performs it.

[0027] A door 9 is shut and locked after setting a wheelchair 20. If a door 9 is shut, the penetration section 27 will be held in the notch side-vent section 14, and the interference seal section 13 which carries out the seal of the hot and cold water with the side-vent packing 15 and the interference packing 16 of \*\*\*\*\* 10 which were prepared in this section 14 will be formed.

[0028] The door packing 12 of attachment to \*\*\*\*\* 10 of a door 9 contacts each transverse-plane edge of the left, right-hand side wall 3a, and 3b of the opening 2 of a bathtub 1, and the transverse-plane edge of a bottom wall 5. Next, the hanging handle (illustration abbreviation) prepared in a bathtub 1 is operated, a door 9 is tightened in the bathtub 1 direction, and a seal is made possible for the opening 2 between a bathtub 1 and a door 9.

[0029] The aforementioned door packing 12 is pressed and plans the watertight of a door 9 and a bathtub 1. That is, a door 9 is pressed by each transverse-plane edge of the left, right-hand side wall 3a, and 3b of a bathtub 1, both watertight is planned, and further, the soffit section of a door 9 is pressed by the front end of a bottom wall 5, and plans both watertight.

[0030] Next, the pressure operation implement (illustration abbreviation) of the side-vent packing 15 which constitutes the interference seal section 13 is operated, a suitable pressure is applied, and is expanded, the skimmer of the penetration section 27 and the notch side-vent section 14 is blocked, and the watertight of a side-attachment-wall portion is planned. In the bathtub 1 upper part, since water pressure is low, compared with the seal in the bottom wall edge 6, a seal is carried out more simply good. Next, a bath is taken by operating a control unit 40 and moving the hot water of hot-water supply and hot-water-storing equipment 39 to a bathtub 1.

[0031] When it is going to \*\*\*\*, after making the hot water of a bathtub 1 move or discharge to aforementioned hot-water supply and hot-water-storing equipment 39, extracting hot water first, making it empty and a seal state pressure-operation-implement-etc.-cancels, the hanging handle (illustration abbreviation) of a door lock etc. is operated, hanging with a bathtub 1 and a door 9 is removed, a door 9 is opened, a bathing person is pulled out from a bathtub 1 with a wheelchair 20, and bathing is finished.

[0032] The 2nd example shown in drawing 3 shows the example of reclining structure of a wheelchair 20. The seat base 25 supported by the connection base material 23 puts the seat section 24 on the seat firm attachment section 26 and the lower part which \*\*\*\* the regions of back of the seat section 24 possible [ a slide ] up and down in the upper part, seat base rail 25b and seat slider 25c of the seat section 24 lower part which can be slid forward and backward, and 25d of slide telescoping members are constituted, and a \*\*\*\*\* nose of cam is a foot rest 41.

[0033] By 25d of slide telescoping members, the angle of the seat section 24 is adjusted free and a

proper reclining is formed. although illustration is excluded -- others -- a well-known reclining is applied similarly In addition, among drawing 3 , 25a is seat base stay and 42 is an armrest.

[0034] The 3rd example which shows explanation of the cross section of side view to drawing 4 divides and forms the notch side-vent section 14 which constitutes the interference seal section 13 prepared between the side-attachment-wall edge 4 of a bathtub 1, and \*\*\*\*\* 10 in the both sides of a side attachment wall 3 and a door 9, and although excluded for details, it makes sealing possible only according to the stoppage force of a door 9.

[0035] Moreover, in order to assist the point of the seat base 25 with the seat load concerning the connection base material 23, and for a seat to prevent in shake etc. and to slim the connection base material 23, It has stopped, after it was prepared in the truck 22 possible [ revolution ] and locking lever 33a of the seat lock 33 locks the point of the seat base 25, when the seat lock 33 and the seat roll 34 are formed and the seat lock 33 has a wheelchair 20 out of a bathtub 1. In case it inserts in a bathtub 1, the seat roll 34 runs aground to a bottom wall 5, it circles according to the spring force, and a bottom wall 5 is hidden caudad and locking lever 33a is contained.

[0036] Assisting a seat load, the seat roll 34 slides on the bottom wall 5 top in a bathtub 1, and a bathtub 1 is equipped with it. Moreover, the truck stop section 19 is formed in the the end section of the truck storage space 7 of a bathtub 1, and the front end section of a truck 22 is stopped. In addition, for the bathtub notch side-vent section and 14, the door notch side-vent section and 33b are [ 14a / a coma and 33d of the supporting point and 33c ] pins among drawing 4 .

[0037] Drawing 5 is partial explanatory drawing of side view showing the 4th example which formed the interference seal section 13 in the side-attachment-wall 3 upper-limit section. The seal lid 35 constituted from upper seal lid 35a and lower seal lid 35b which form the notch side-vent section 14 which carried out the rectangle-like corner cut of the side-attachment-wall edge 4 of the side-attachment-wall 3 upper part, and circle in the shape of vertical scissors in this section 14 is arranged, and the interference space 17 which the penetration section 25 of the connection base material 23 interferes and penetrates is constituted in the pars intermedia of the upper and lower sides.

[0038] It is the structure which a wheelchair 20 is inserted in the bathtub 1 with which vertical seal lid 35a and 35b were opened wide, and the seal lid 35 of the post-upper and lower sides is closed, and forms the interference seal section 13. A door 9 is also stopped simultaneously and water supply of hot and cold water is attained. Although the revolution mechanism of vertical seal lid 35a and 35b can operate with the engagement set of vertical gear 36a and 36b in a gear 36 and illustration is omitted, it has structure which is interlocked with the stoppage operation of a door 9 and operates.

[0039] Moreover, even when the leakage-of-water saucer 43 and the drainage tube 38 which enable drainage of little leakage of water under the interference seal section 13 attach and some leakage of water arises, it can drain easily.

[0040]

[Effect of the Invention] this invention opening the door 9 of a bathtub 1, and making the connection base material 23 of a wheelchair 20 interfere and penetrate in the side-attachment-wall edge 4 upper-part section from opening 2, it inserts a wheelchair 20 and makes the separation receipt of \*\*\*\*\* 21 and the truck 22 carry out within and without a bathtub 1. Shut a door 9, the notch side-vent section 14 established by the side-attachment-wall edge 4 and/or \*\*\*\*\* 10 is made to penetrate the connection base material 23, and the seal of this section is carried out by the interference packing 16.

[0041] According to this composition, since the connection base material 23 does not exceed the side attachment wall 3 of a bathtub 1, and it does not become large but fits in the height below the shoulder of a wheelchair 20, including appearance, it is compact and does not become an obstacle of a bathing person or a care worker, either, but appearance appearance is also good and operability and handling nature are good.

[0042] Since there is no this invention of the 13 interference seal section in a bottom wall 5 or bathtub 1 lower part, below the half at the time of preparing in a bottom wall 5, because of 20% or less, easy seal structure is sufficient as the water pressure concerning the seal structured division, even if sponge packing etc. has some leakage of water, it can be easily processed according to a little drainage

mechanism (= \*\*\* saucer), its large-scale seal mechanism is also unnecessary, its bathtub 1 structure is also simple, and preferably is [ packing ] convenient [ water pressure ].

[0043] Moreover, since the connection base material 23 which connects \*\*\*\*\* 21 and a truck 22 is located near the boundary of a side attachment wall 3 and a door 9, in order for there to be also almost no notch \*\*\*\*\* about \*\*\*\* 8, also at the stability of deferment installation, completely, a problem, there is nothing and bathtub 1 structure is also simple, and it is convenient.

[0044] Furthermore, even if it originates in floor inclination etc. and some inclines [ the connection base material 23 ], in order that there may almost be no water pressure and big trouble may not attain to a seal operation, either, restrictions of floor inclination are not received, either, even if the state of the penetration section 27 of the interference seal section 13 changes by secular change etc., trouble does not attain to a seal operation, but it is convenient.

[0045] Since advance conveyance which \*\*\*\*\* 28 of a wheelchair 20 is behind \*\*\*\*\* 21 and the seat section 23, and comes out positively, and advance insertion are possible for this invention, it is good, and a bathing person's feeling of wear is also excellent also in a care worker's care performance, and is convenient.

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[Translation done.]

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PRIOR ART

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[Description of the Prior Art] To JP,9-94279,A, it is deferred type wheelchair bathing equipment as a Prior art. The chair trolley-equipment of the deferred type wheelchair bathing equipment which inverted-L-shaped perpendicular installation hangs and serves as a door opening-and-closing formula bathtub (main part of = bathtub), the deferment structure only by the side of the second half section of the main part of a bathtub, the structure of surfacing the first portion of the base of the main part of a bathtub from a floor line, a door, a chair trolley, an axle-pin rake, and a movable cart, by the frame and members, such as a main part of a chair, is indicated.

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[Translation done.]

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective diagram of the 1st example of this invention.

[Drawing 2] It is the perspective diagram of the interference seal section in the 1st example of this invention.

[Drawing 3] It is the perspective diagram of the wheelchair in the 2nd example of this invention.

[Drawing 4] It is the side elevation of the 3rd example of this invention.

[Drawing 5] It is the plan of the interference seal section in the 4th example of this invention.

[Description of Notations]

- 1 Bathtub
- 2 Opening
- 3 Side Attachment Wall
- 4 Side-Attachment-Wall Edge
- 4a Left-hand side wall edge
- 4b Right-hand side wall edge
- 5 Bottom Wall
- 7 Storage Space
- 9 Door
- 10 \*\*\*\*\*
- 13 Interference Seal Section
- 14 Notch Side-Vent Section
- 15 Side-Vent Packing
- 16 Interference Packing
- 18 Guide Tub Outside
- 20 Wheelchair
- 21 \*\*\*\*\*
- 22 Truck
- 23 Connection Base Material
- 24 Seat Section
- 27 Penetration Section
- 29 \*\*\*\*\*
- 32 Truck Guide

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[Translation done.]

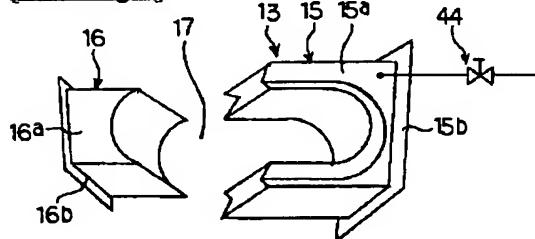
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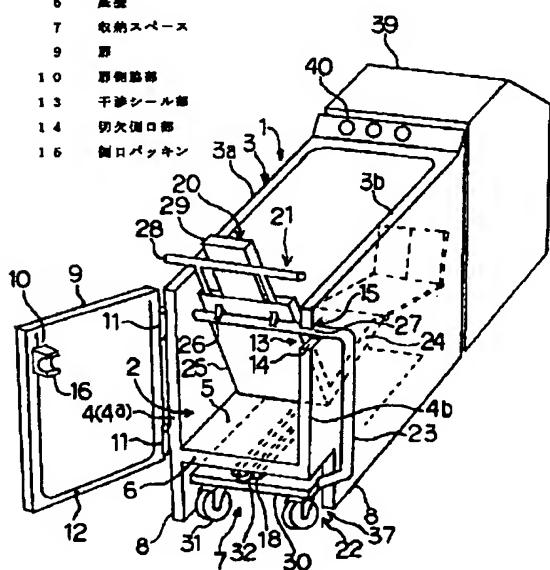
## DRAWINGS

### [Drawing 2]

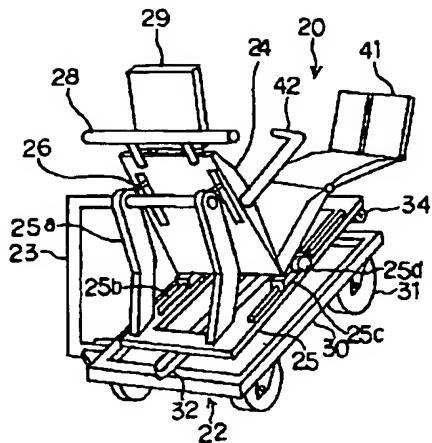


[Drawing 1]

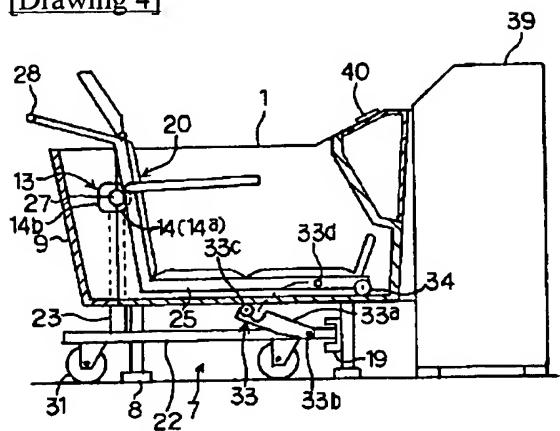
1	荷物	1 6	干渉パッキン	2 3	連結支持体
2	開口部	1 8	機外ガイド	2 4	座席部
3	側壁	2 0	車椅子	2 7	貢送部
4	側壁端部	2 1	乗座部	2 9	押収手
4 a	左側壁端部	2 2	台車部	3 2	台車ガイド
4 b	右側壁端部				
5	底盤				
7	収納スペース				
9	扉				
1 0	扉側部				
1 3	干渉シール部				
1 4	初次開口部				



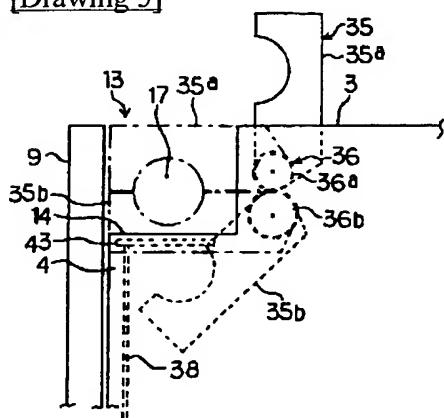
**[Drawing 3]**



[Drawing 4]



[Drawing 5]



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[Translation done.]